

Detection of Impersonation In Online Examinations Using Blockchain

Anjana M S

MES20MCA-2009

Product owner :Balachandran K P

A large, abstract graphic on the left side of the slide features a complex arrangement of light gray, white, and dark gray geometric shapes, resembling a 3D polyhedron or a stylized mountain range, set against a black background.

TABLE OF CONTENTS

1. Introduction
2. Modules
3. Data Flow Diagram
4. Table Design
5. Developing Environment
6. Product Backlog
7. User Stories
8. Project Plan
9. Sprint Plans
10. Sprint Actual

Detection of Impersonation In Online Examinations Using Blockchain

- ❖ We are living in the era where examinations are becoming online examinations. In online examinations there is a lot of chance of impersonation. This project proposes a method to overcome the downside of online examinations which is impersonation.
- ❖ This approach aims in increasing the credibility of online exams and eliminate the need for an examiner so that the exams can be taken from any convenient location. In recent days, the candidate appearing for an online examination is authenticated by carrying out manual verification of the candidate's credentials by the examiner. Conducting an automated face authentication dynamically during the exam at definite intervals will check the identity of the user.
- ❖ For this type of authentication, we use facial recognition system which uses the Viola-Jones algorithm, and SVM (SUPPORT VECTOR MACHINE) for detection and recognition respectively.
- ❖ Another problem faced in the examination system is the forgery of certificates. To solve this problem, we save the certificates generated from the online examination in the blocks of the blockchain. Blockchain is decentralized, transparent and tamper proof method of storing data which will help in the elimination of forging.

A. Face Authentication

We use image processing toolbox to perform the face authentication. Just like any other form of biometric identification, face recognition requires samples to be collected, identified, extracted with necessary (features) information, and stored for recognition. The algorithm that is used for face recognition is Viola-Jones algorithm and SVM (Support Vector Machine).

B. Online Examination Portal

After face authentication, the candidate is provided with the examination on portal which is built using Python where they can write their exam and the score report will be generated as an e-certificate for each candidate.

C. Certificate Generation and Verification

E-Certificate will be generated for each candidate as a pdf format. It is also downloadable. The hash value of the pdf is calculated and stored in the blockchain. The verification portal again calculates the hash value of the file and check if it matches with the hash value of the pdf in the blockchain. As we use blockchain, only authorized people can access the documents stored using their private keys.

MODULES

➤ ADMIN

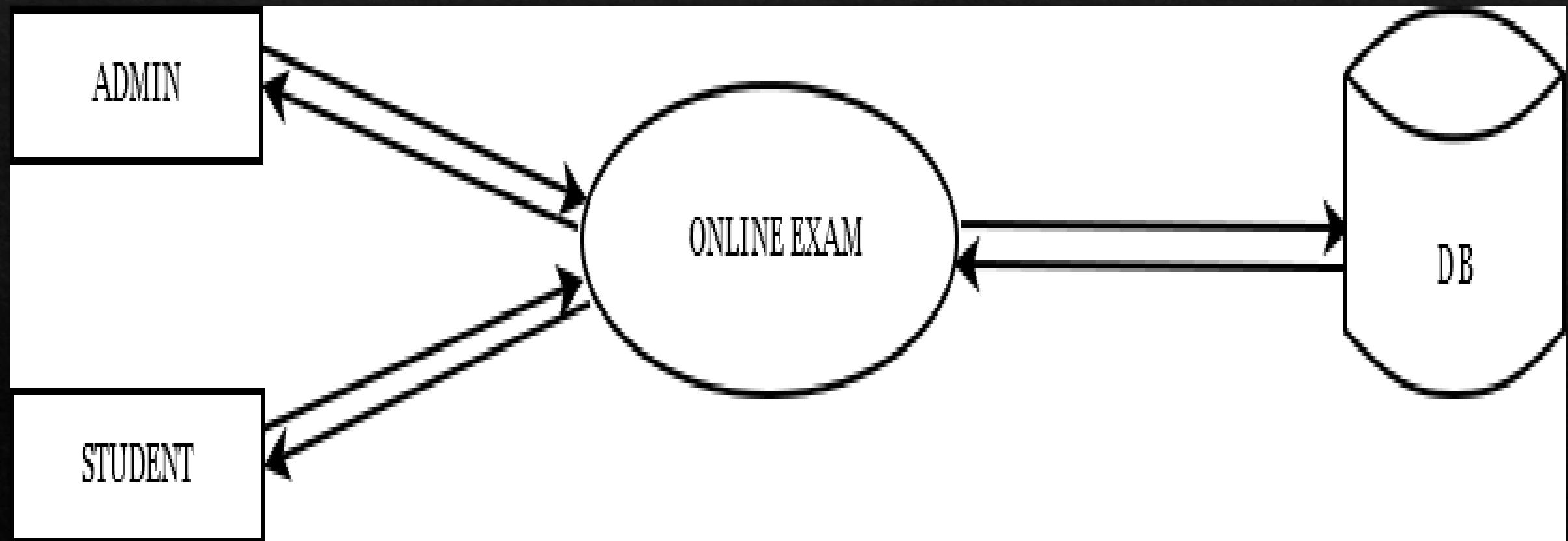
- ❖ Login
- ❖ Student Registration
- ❖ Add Subjects
- ❖ Add Questions & Answers
- ❖ Upload Study Materials
- ❖ Exam scheduling

➤ STUDENT

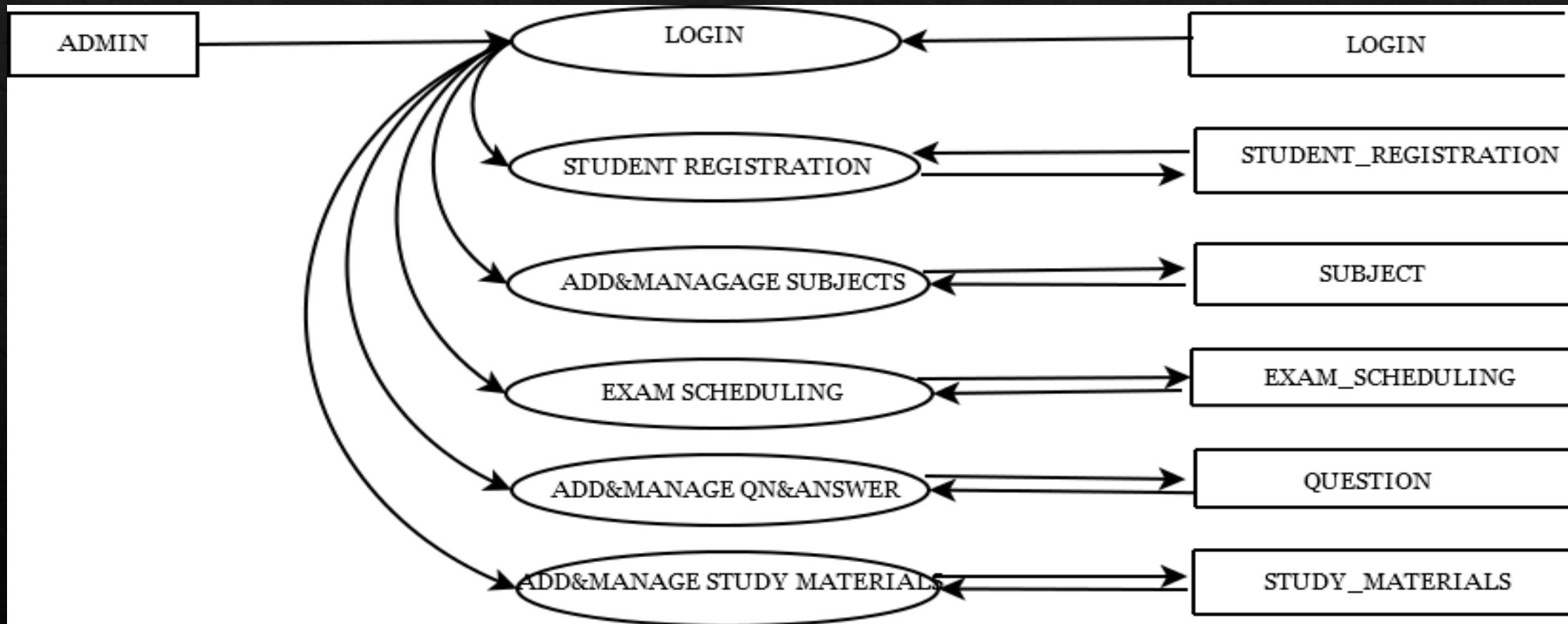
- ❖ Login
- ❖ View Subjects
- ❖ View Study Materials
- ❖ Attend Exam
- ❖ View Results

DATA FLOW DIAGRAM

LEVEL 0



LEVEL 1.1



LEVEL 1.2

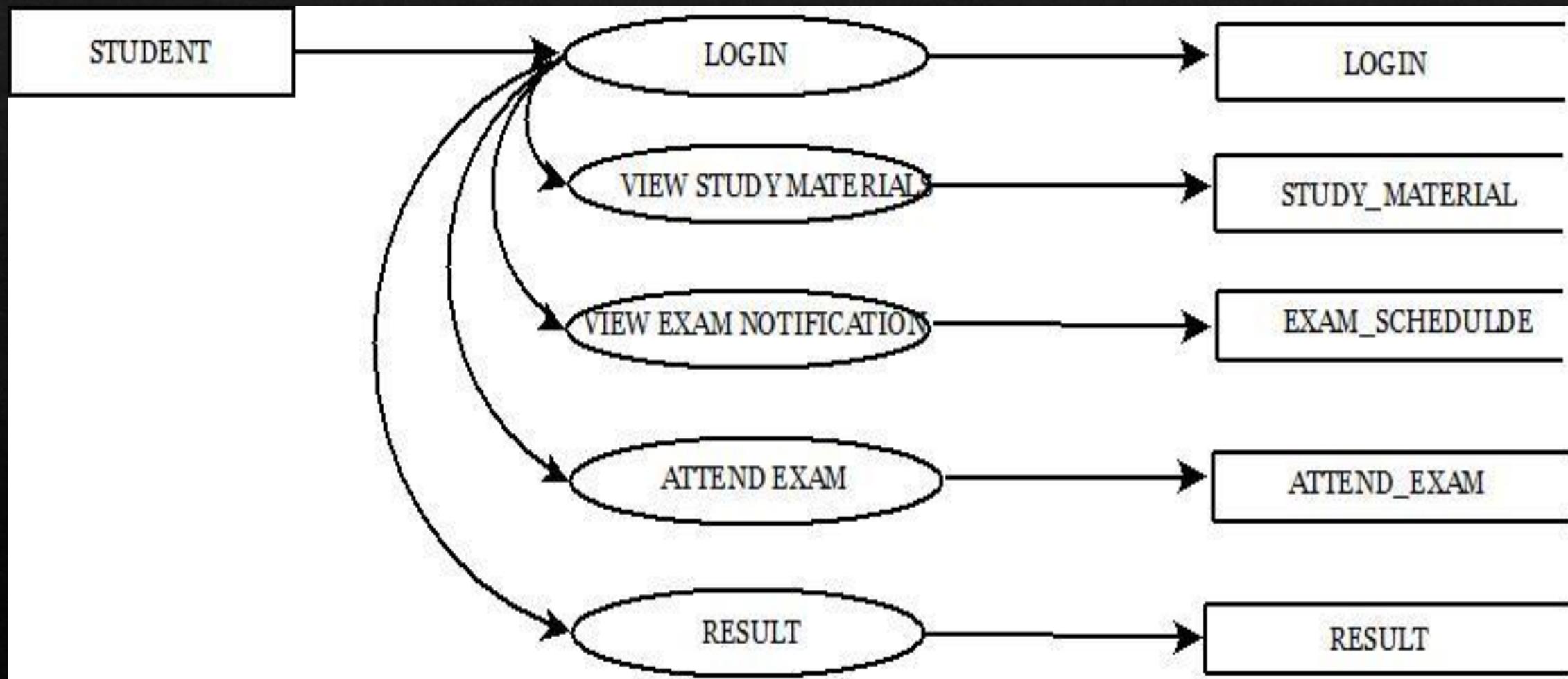


TABLE DESIGN

Login

Student Registration

Subject

DEVELOPING ENVIRONMENT

- ❖ OPERATING SYSTEM: WINDOWS 10 AND ABOVE
- ❖ FRONT END: HTML, CSS, JAVASCRIPT
- ❖ BACK END: Mysql
- ❖ SOFTWARES USED: Jetbrains Pycharm, Android Studio ,SQLyog
- ❖ TECHNOLOGY USED: PYTHON, JAVA
- ❖ FRAME WORK USED: Flask

USER STORIES

User Story ID	As a type of User	I want to <perform some task>	So that I can <Achieve Some Goal>
1	Admin	login	login successful with correct username and password
2	Admin	student registration management	add student, manage student
3	Admin	add and manage subject	mange subjects
4	Admin	add questions and study materials	manage questions and materials
5	Admin	schedule exam	Create examination portal
6	User	login	login successfully with correct username and password
7	User	view study materials	view study materials in application
8	User	view examination notifications	attend mcq type exams in examination portal
9	User	attend exams	identity verification and face recognition
10	User	view results	download e -certificate in pdf format stored in the blockchain

PRODUCT BACKLOG

User story ID	Priority <High/Medium/Low>	Size (Hours)	Sprint <#>	Status <Planned/In progress/Completed>	Release Date	Release Goal
1	Medium	2	1	Completed	8/01/2022	Table Design
2	High	3		Completed	8/01/2022	Form Design
3	High	5		Completed	8/01/2022	Basic Coding
4	High	5	2	Planned		Face Recognition
5	Medium	5		Planned		SVM algorithm to Classify the Faces in the Database
6	High	5	3	Planned		Provide Online Examination Portal
7	Medium	5		Planned		Certificate Generation and Verification
8	Medium	5	4	Planned		Testing Data
9	High	5		Planned		Output Generation

PROJECT PLAN

User Story ID	Task Name	Start Date	End Date	Days	Status
1	Sprint 1	26/12/2021	28/12/2021	10	Completed
2		29/12/2021	31/12/2021		Completed
3		3/01/2022	8/01/2022		Completed
4	Sprint 2	9/01/2022	16/01/2022	13	In Progress
5		18/01/2022	22/01/2022		In Progress
6	Sprint 3	23/01/2022	27/01/2022	12	In Progress
7		30/01/2022	5/02/2022		In Progress
8	Sprint 4	6/02/2022	10/02/2022	9	In Progress
9		16/02/2022	19/02/2022		In Progress

SPRINT BACKLOG PLAN

Backlog Item	Status And Completion Date	Original Estimation in Hours	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
UserStory#1,#2,#3			hrs	hrs	hrs	hrs	hrs									
Table Designing	28/12/2021	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Form Designing	31/12/2021	3	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Basic Coding	8/01/2022	5	0	0	0	0	0	1	1	1	1	1	0	0	0	0
UserStory#4, #5																
Face Recognition	16/01/2022	5	1	1	0	1	1	1	0	0	0	0	0	0	0	0
Identity Verification	22/01/2022	5	0	0	0	0	0	0	0	1	1	0	1	1	1	0
UserStory#6,#7																
Online Examination Portal	27/01/2022	5	1	1	1	0	1	1	0	0	0	0	0	0	0	0
Certificate Generation & verification	5/02/2022	5	0	0	0	0	0	0	0	1	1	1	1	1	0	0
UserStory#8,#9																
Testing Data	10/02/2022	5	1	1	1	1	1	0	0	0	0	0	0	0	0	0
Output Generation	20/02/2022	5	0	0	0	0	0	0	2	2	1	0	0	0	0	0
Total		40	4	4	3	3	4	3	3	5	4	2	2	2	1	0

SPRINT ACTUAL

Backlog Item	Status And Completion Date	Original Estimation in Hours	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
UserStory#1,#2,#3		hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs	hrs
Table Designing	28/12/2021	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Form Designing	31/12/2021	4	0	0	0	1	1	0	1	1	0	0	0	0	0	0
Coding	8/01/2022	4	0	0	0	0	0	0	0	0	2	1	1	0	0	0
UserStory#4, #5																
Face Recognition																
Identity Verification																
UserStory#6,#7																
Online Examination Portal																
Certificate Generation & verification																
UserStory#8,#9																
Testing Data																
Output Generation																
		10	1	1	0	1	1	0	1	1	2	1	1	0	0	0

THANK YOU